

REDUCED THICKNESS VARIATION IN A MATERIAL LAYER DEPOSITED IN
NARROW AND WIDE TRENCHES

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ABSTRACT

A high density plasma chemical vapor deposition (HDP-CVD) process is used to deposit silicon dioxide in trenches of various widths. The thickness of the silicon dioxide filling both narrow and wide trenches is made more uniform by reducing an HDP-CVD etch to deposition ratio. The lowered etch to deposition ratio is achieved by lowering a ratio of oxygen to silane gas, by lowering the power of a high frequency bias signal, and by lowering the total gas flow rate.